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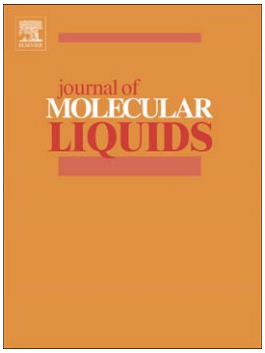

Magnetohydrodynamic (MHD) stretched flow of tangent hyperbolic nanoliquid with variable thickness

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ACCEPTED MANUSCRIPT

Magnetohydrodynamic (MHD) stretched flow of tangent hyperbolic nanoliquid with variable thickness

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Abstract: Here characteristics of magnetic nanoparticles in stretched flow of tangent hyperbolic nanoliquid are explored. Considered nonlinear nanofluid model is due to Brownian motion and thermophoresis mechanisms. Thickness of nonlinear stretching surface is variable. Mathematical formulation is modeled employing boundary layer concept. Recently suggested condition for volume fraction of nanoparticle at the surface to be controlled passively rather than actively is utilized. Computations are arranged for the convergent solutions of nonlinear system. Features for different emerging parameters are analyzed and argued. It is anticipated that larger magnetic parameter and Weissenberg number reduce the velocity distribution. Moreover the behaviors of thermophoretic variable noted similar on temperature and nanoparticles concentration.

Keywords: Variable sheet thickness; MHD; tangent hyperbolic nanoliquid; Nonlinear stretching surface.

1 Introduction

The study of nanomaterials has gained considerable importance from the recent investigators. It is due to their extensive utilization in transportation, medicine, electronics and

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